



Dr. Margaret Kincaid researches the dynein/dynactin motor complex and how it applies to human neurodegenerative diseases.

One of four JCCC

College Scholars during the 2009-10 academic year, Dr.

Margaret Kincaid, adjunct assistant professor, science, will give two lectures pertaining to an underlying cellular cause of human neurodegenerative diseases.

- *Understanding the role of the dynein/dynactin motor in neurodegenerative diseases* will be at 7 p.m. Wednesday, Feb. 10, in the Hudson Auditorium in the Nerman Museum of Contemporary Art. A reception precedes the event at 6:30 p.m. in the Atrium.
- *A reductionist approach to understanding the role of the dynein/dynactin motor in neurodegenerative diseases* will be at 11 a.m. Thursday, Feb. 11, in the Craig Community Auditorium.

Intracellular trafficking plays an important role in a range of human disease. As a basic scientist, Kincaid is looking at one component of intracellular trafficking – the dynein/dynactin motor complex. Dynein is a motor molecule in cells that converts chemical energy into the mechanical energy of movement. Dynactin is needed to activate dynein activity. Kincaid's model gives insight into how mutations associated with the motor complex may contribute to neurodegenerative diseases, in particular late-onset diseases associated with motor neurons. A greater understanding of dynactin-dependent dynein movement may lead to potential treatment therapies.

In her evening lecture, Kincaid will present her most recent data that corroborates a working model for how dynactin

regulates the function of dynein inside cells in order to transport cargo along “highways” within cells. She will explain the role the motor complex plays in human diseases such as amyotrophic lateral sclerosis (ALS) or Lou Gehrig's disease, Alzheimer's disease, Parkinson's disease and Huntington's disease.

In the daytime lecture, Kincaid will explain some laboratory techniques she is using to determine how dynactin affects dynein-dependent transport inside cells — techniques such as an *in vitro* bead-based motility assay and fluorescent-tagged molecules within mammalian cells. She will look at how the research is used to determine the effects of dynactin mutants, including mutations linked to ALS.

Kincaid has a bachelor's degree in biology, a master's degree in cell and molecular biology, and a PhD in cell biology and biophysics and molecular biology and biochemistry from the University of Missouri-Kansas City. She currently is a postdoctoral fellow in the laboratory of Dr. Stephen King, School for Biological Sciences, UMKC.

Kincaid says her lectures will be of interest to JCCC faculty and students who are interested in how basic science research can be applied to human diseases and how a complex biological process is studied in the laboratory.

JCCC's College Scholars program presents member of the college's own faculty. For more information about the JCCC College Scholars program, contact Karen Martley, director, Staff and Organizational Development, 913-469-8500, ext. 3467. ■